



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 10/334,137
Applicant: MURDIN, Andrew D. et al.
Filed: December 31, 2002
TC/A.U.: 1645
Examiner: Nita M. Minnifield

Docket No: 032931/0261

Commissioner for Patents
P.O. Box 1450
Washington, D.C. 20231

DECLARATION PURSUANT TO 37 CFR § 1.132

I, Andrew Murdin, Director, External R&D Canada, Aventis Pasteur, hereby declare that:

1. Details of my employment history are as follows:

Since 2002 Director, External R&D Canada, Aventis Pasteur.

1999 - 2002 Principal Research Scientist, Aventis Pasteur.

1997 - 2002 Section Head, Aventis Pasteur

1993 - 2003 Project Leader (Chlamydia), Aventis Pasteur

1990 - 1993 Research Scientist, Connaught Laboratories Ltd. (subsequently Pasteur Merieux Connaught, subsequently Aventis Pasteur), Toronto, Canada

1988 to 1990 - Post-Doctoral Research Associate, Dept. of Microbiology, State University of New York, Stony Brook, NY, USA.

1985 to 1987 - Post-Doctoral Research Fellow, Dept. of Microbiology, University of Surrey, Guildford, Surrey, England.

1981 to 1985 - Scientific Officer, Vaccine Research Dept., Animal Virus Research Institute, Pirbright, Surrey, England.

2. Details of my education are as follows:

B.Sc., University of Bath, England, 1980

Ph.D., University of Surrey, England, 1986

3. I have reviewed U.S. patent No. 6,559,294 to Griffais et al. ("Griffais"), which is cited in the Office Action mailed September 11, 2003.

4. Griffais sequenced the *C. pneumoniae* genome and identified 1296 putative open reading frames (see Table 1 of Griffais).

5. Griffais says any of the 1296 open reading frames can be used to make a vaccine. This is incorrect as discussed below.

6. Experiments conducted by the assignee Aventis Pasteur Limited demonstrate that only a few of the 1296 open reading frames can be used as vaccines.

7. Thirty six *C. pneumoniae* open reading frames coding for outer membrane proteins were tested for their ability to protect against *C. pneumoniae* infection in the *in vivo* mouse model. The attached Summary of Protective Results specifies:

- which construct was used for immunization. The constructs were made essentially as described in Examples 1 and 2 of the specification;
- which of Griffais' SEQ ID NOs correspond to the sequences in the construct, and
- whether these sequences confer protection. Testing of the constructs for immuno-protection was performed as described in Example 3 of the specification.

8. The attached Raw Biologic Data show the raw data (bacterial load per lung) in each experiment. The experiments were performed as described in Example 3 of the specification.

9. As is clear from the Summary of Protective Results and the Raw Biologic Data, of the 36 *C. pneumoniae* ORFs tested, only 8 (i.e. 22%) provided a protective effect.
10. These results confirm that Griffais is incorrect in stating that any of the 1296 open reading frames can be used in a vaccine.
11. I hereby declare that all statements made herein of my knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

February 11th 2004

Date

A handwritten signature in black ink, appearing to read 'Andrew Murdin', written over a horizontal line.

Andrew Murdin,

Director, External R&D Canada

SUMMARY OF PROTECTIVE RESULTS

Plasmid-ID	Hit Description/Comment	corresponding SEQ ID No from WO99/27105	PROTECTIVE Yes/No	Tested in Screens/Group	WILCOXON "p" value (vs SALINE/PBS immunized-group B-on day 9, unless otherwise noted)
pCAI877	pmp1; putative 98 kDa outer membrane protein; CP 036	15	NO	S8 -group E	day 5-0.7302
					day 9-0.9048
pCAI397	pmp2; putative 98 kDa outer membrane protein; CP 017	25	NO	S3 -group E	day 5-0.5714
					day 9-0.3929
pCAI396	CP 014	28	YES	S4 -group F	S4-day 5-1.75
					S4-day 9-1.75
				S47 -group H	S47-0.007992
pCAI395	pmp4; putative 98 kDa outer membrane protein; CP 013	31/32	NO	S4 -group E	day 5-0.7857
					day 9-1.214
pCAI394	pmp5; putative 98 kDa outer membrane protein; CP 012	33/35	NO	S4 -group D	day 5-0.5714
					day 9-1.429
pCACPNM 200	IncA; inclusion membrane protein	201	NO	S34 -group D	0.2844

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pCAI314	outer membrane protein; CP 008; Incyte 314	291	NO	S2 -group E	S2-day 5-0.7857
				S52 -group E	S2-day 9-0.7857
					S52-1.338
pCAI114	inclusion membrane protein B	304	NO	S17 -group D	0.7546
pCAI115	inclusion membrane protein C; CP 011	305	YES	S10 -group D	S10-day 5-0.03175
				S56 -group K	S10-day 9-0.9048
					S56-0.4136
pCAI111	outer membrane protein Omp85; CP 015	314	NO	S7 -group D	0.7302
pCABk319	OmpH-like outer membrane protein	315	NO	S32 -group H	S32-0.04262
				S47 -group I	S47-0.2284
pCAI368	pmp 6; putative 98 kDa outer membrane protein	466	NO	S17 -group I	1.655
pCAI640	pmp 7; putative 98 kDa outer membrane protein; CP 032	468	NO	S9 -group G	S9-day 5-0.03175
					S9-day 9-0.9048
				S56 -group F	S56-1.665

pCAI639	pmp 8; putative 98 kDa outer membrane protein; CP 031	470	NO	S7 -group F	d9 only-0.9048
pCAI638	pmp 9; putative 98 kDa outer membrane protein; CP 030	472	NO	S41 -group D	S41-0.0293
				S56 -group G	S56-1.338
pCAI635	pmp 10; putative 98 kDa outer membrane protein; CP 029	477	NO	S38 -group I	S38-0.01998
				S57 -group H	S57-0.1812
pCAI634	pmp 11; putative 98 kDa outer membrane protein; CP 028	478	NO	S9 -group F	day 5-0.4127
					day 9-1.27
pCAI633	pmp 12; putative 98 kDa outer membrane protein	479	NO		
pCAI632	POMP91B precursor	480/482	NO	S10 -group G	S10-day 5-0.01587
					S10-day 9-0.5556
				S45 group H	S45-1.655
				S53 -group H	S53-0.1375
pCAI630	POMP91A	485	NO	S10 -group F	day 5-0.1111
					day 9-0.4127
pCAI628	putative 98 kDa outer membrane protein; CP 027	500	NO	S9 -group E	day 5-0.5556
					day 9-0.25

pCAI626	POMP90B precursor	500/501	NO		

pCAI624	putative 98 kDa outer membrane protein	503	NO	S21 -group H	0.5728
pCAI622	POMP90B precursor	506	NO		
pCAI327	POMP91A	577	YES	S18 -group D	S18-0.01265
				S45 -group F	S45-0.4136
				S53 -group F	S53-0.004662
pCAI325	pmp 20; putative 98 kDa outer membrane protein	580	NO		
pCAI711	putative outer membrane protein	580	NO	S18 -group E	0.2824
pCA60kDa	60kDa CrP; outer membrane protein; CP 004	596	YES	S5 -group E	S5-day 5-0.03175
					S5-day 9-0.01587
				S27 -group H	S27-0.001335
				S43 -group J	S43-0.002664
				S44 -group J	S44-vs S43 grp B-0.007992
				S49 -groups J/K/L	S49-J-0.3095
					S49-K-0.9048
					S49-L-0.1508
				S50 -groups F/I	S50-F-0.345
					S50-I-0.000666
				S54 -group J	S54-0.7546

pCAMOMP	major outer membrane protein; in S3-used recombinant CP MOMP; in S20-used CP MOMP ISCOMs	737	YES	S1 -group D	S1-day 5-0.3929
					S1-day 9-1.75
				S3 -group F	S3-day 5-0.25
					S3-day 9-0.7857
				S16 -groups D/G/H/F	S16-D-0.2468
					S16-G-0.1775
					S16-H-0.6991
					S16-F-0.1255
				S20 -group H	S20-0.05927
				S27 -group I	S27-0.0293
				S31 -groups D/E/F/G/H/I	S31-D-0.04262
					S31-E-0.001332
					S31-F-0.5728
					S31-G-0.8518
					S31-H-0.1812
					S31-I-1.427
				S50 -groups E/I	S50-E-0.002664
					S50-I-0.000666
pCAI555a	76 kDa protein-alternative reading frame	776/775	YES	S51 -group F	0.01399

pCAI419	PIIG		876	NO	S10 -group E	S10-day 5-0.01587
						S10-day 9-0.1111
					S45 -group E	S45-1.509
					S53 -group E	S53-0.9452
pCACPNM 879	Predicted OMP		877	NO	S37 -group E	needed to be retested and never was
pCACPNM 882	Hypothetical protein; sec. locus ORF		880	NO	S44 -group I	S44-vs S43 grp B-0.0293
					S52 -group G	S52-0.7546
					S54 -group I	S54-0.662
pCAI473	Unannotated Orf		1035	YES	S23 -group I	0.08125
pCA9kDa	9kDa CrP; CP003		597	NO	S5 -group D	day 5-0.2857
						day 9-0.1905

RAW BIOLOGIC DATA

Note:
sample
dilutions S1-S7 - 1:50 and 1:100, in duplicate
S8-S57 - 1:50 and 1:100; 1:100 and 1:200

Screen #		S1		Notebook #		1837		pCAIMOMP					Genset SEQ ID NO 737				
Data				Page #		1											
Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate B Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Average IFU per lung @ 1:50	Average IFU per lung @1:100	Average IFU per lung	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p values (vs grp B, same day)	Immunized with					
B1	5	5	20	5	15	5000	8000	6500	2400	2898.42523	na	PBS					
B2	5	0	0	2	0	0	800	400									
B3	5	0	1	1	0	200	400	300									
B4	9	14	61	19	32	15000	20400	17700	7800	7052.65907	na	PBS					
B5	9	2	11	2	11	2600	5200	3800									
B6	9	2	6	0	4	2000	1600	1800									
D1	5	6	48	5	4	11000	3600	7300	3480	2318.82758	0.3929	DNA CP 001					
D2	5	1	8	4	2	1800	2400	2100				MOMP					
D3	5	0	10	4	13	2000	5800	4400									
D4	5	4	2	7	6	1200	5200	3200									
D5	5	0	4	0	0	800	0	400									
D6	9	3	2	0	1	1000	400	700	1300	927.36185	1.75	DNA CP 001					
D7	9	6	5	0	0	2200	0	1100				MOMP					
D8	9	10	2	6	0	2400	2400	2400									
D9	9	0	0	0	0	0	0	0									
D10	9	21	0	1	0	4200	400	2300									

Screen #		S2		Notebook #		1837		pCAI314		Genset SEQ ID NO 291		
Data				Page #		6						
Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate B Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Average IFU per lung @ 1:50	Average IFU per lung @1:100	Average IFU per lung	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p value (vs grp B, same day)	Immunized with
B1	5	24	12	12	19	7200	12400	9800	10486.8667	2334.28552	na	saline
B2	5	42	34	15	15	15200	12000	13600				
B3	5	14	22	8	14	7200	8900	8000				
B4	9	47	45	11	25	18400	14400	16400	17066.6667	4877.64376	na	saline
B5	9	18	41	8	21	11800	11800	11700				

B8	9	65	64	31	20	25900	20400	23100				
E1	5	43	5	23	23	9600	18400	14000	9820	5306.3763	0.7857	DNA CP 008
E2	5	24	43	8	2	13400	4000	8700				Incyle 314
E3	5	34	15	24	27	9600	20400	15100				
E4	5	26	53	16	0	15600	6400	11100				
E5	5	1	1	0	0	400	0	200				
E6	9	11	8	5	4	3600	3500	3700	5540	3015.02902	0.7857	DNA CP 008
E7	9	53	22	19	0	15000	7600	11300				Incyle 314
E8	9	9	1	23	3	2000	10400	6200				
E9	9	16	6	6	2	4400	3200	3800				
E10	9	13	5	4	3	3600	2900	3200				

Screen # 3	S3
Date	

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pCA1397 Genset SEQ ID NO 25

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate B Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Average IFU per lung @ 1:50	Average IFU per lung @1:100	Average IFU per lung	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p value vs grp B, same day	Immunized with
B1	5	29	34	10	15	12600	10000	11300	40800	33861.2857	na	saline
B2	5	226	183	126	106	63900	62900	63000				
B3	5	61	48	36	28	21400	24800	23100				
B4	9	26	22	16		9600	7200	8400	9398.69697	3777.41828	na	saline
B5	9	5	10	7	12	3000	7600	5300				
B6	9	39	39	17	16	15600	13200	14400				
E1	5	22	254	65	123	55200	62400	68600	44400	19601.8116	0.5714	DNA CP 017
E2	5	12	153	46	99	33000	58000	45500				Incycle 397
E3	5	43	123	34	59	33200	37200	35200				
E4	5	116	99	64	47	43000	44400	43700				
E5	5	23	123	5	66	29200	29400	28900				
E6	9	56	208	55	95	52400	80000	59200	21980	16040.9091	0.3929	DNA CP 017
E7	9	42	84	3	49	25200	20800	23000				Incycle 397
E8	9	8	33	12	14	7800	10400	9100				
E9	9	6	23	8	12	5800	8000	6900				
E10	9	9	68	12	20	15400	12800	14100				
F1	5	26	17	31	10	8600	19400	12500	10660	3161.3021	0.25	rec. CP MOMP
F2	5	32	27	7	11	11800	7200	9500				
F3	5	9	18	5	7	5400	4800	5100				
F4	5	43	23	12	28	13200	15200	14200				
F5	5	22	30	20	14	10400	13600	12000				
F6	9	18	12	14	7	6000	8400	7200	11420	5298.58489	0.7857	rec. CP MOMP
F7	9	9	11	6	8	4000	4800	4400				
F8	9	62	65	10	20	25400	12000	18700				
F9	9	48	27	11	6	15000	8600	10900				
F10	9	43	32	13	29	15000	16900	15900				

Screen #	S4
Date	

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pCAI394 Genset SEQ ID NO 33/35
pCAI395 Genset SEQ ID NO 31/32
pCAI396 Genset SEQ ID NO 28

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate B Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p value vs grp B, same day	Immunized with
B1	5	52	39	15	12	18200	10800	14500	21800	17592.2331	na	saline
B2	5	144	102	39	87	48200	42400	45800				
B3	5	12	7	2	11	3800	5200	4500				
B4	9	38	45	28	25	18200	21200	19700	11468.8687	5134.41547	na	saline
B5	9	20	19	8	9	7800	8600	7300				
B6	9	12	28	9	13	8000	8800	8400				
D1	5	102	85	52	43	37400	38000	37700	27060	11345.5895	0.3714	DNA CP 012
D2	5	65	51	28	28	23200	22400	22800				Incycle 394
D3	5	52	45	7	17	18400	9600	14500				
D4	5	28	52	29	18	15800	18800	17200				
D5	5	89	106	75	43	39000	47200	43100				
D6	9	58	28	34	12	18400	18400	17400	9080	5251.81873	1.428	DNA CP 012
D7	9	44	32	13	9	15200	8800	12000				Incycle 394
D8	9	13	6	4	4	3800	3200	3500				
D9	9	17	14	2	1	8200	1200	3700				
D10	9	23	29	11	7	10400	7200	8800				
E1	5	44	42	22	28	17200	20400	18800	21940	15249.7344	0.7857	DNA CP 013
E2	5	45	43	7	13	17800	8000	12800				Incycle 395
E3	5	14	11	8	8	5000	6400	5700				
E4	5	47	55	28	28	20400	20800	20600				
E5	5	122	121	60	70	48800	52000	50300				
E6	9	41	72	44	58	22800	40000	31300	18220	17153.2388	1.214	DNA CP 013
E7	9	1	0	1	1	200	800	500				Incycle 395
E8	9	115	118	58	53	48200	44400	45300				
E9	9	12	13	10	9	5000	7800	6300				
E10	9	16	17	13	9	8600	8800	7700				
F1	5	12	1	5	10	2600	8000	4300	8540	3828.11788	1.75	DNA CP 014
F2	5	34	38	10	20	14600	12000	13300				Incycle 398
F3	5	32	31	11	12	12800	9200	10900				
F4	5	20	5	7	8	5000	6000	5500				
F5	5	41	34	15	18	15000	12400	13700				
F6	9	23	28	18	15	8800	13200	11500	4400	3858.8818	1.75	DNA CP 014
F7	9	8	5	1	6	2800	2500	2700				Incycle 398
F8	9	12	10	3	4	4400	2800	3800				
F9	9	5	5	0	0	2000	0	1000				

[illegible]

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate B Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Average FU per lung @ 1:50	Average FU per lung @1:100	Average FU per lung	Group mean FU/lung	Group SD FU/lung	Wilcoxon p value vs grp B, same day	Immunized with
B6	0	nc	nc	121	183		121800	121800	57380	44186.036	na	saline
B7	0	nc	nc	93	112		82000	82000				
B8	0	13	18	4	3	5800	2900	4300				
B9	0	30	38	9	15	13200	9600	11400				
B10	0	nc	nc	85	84		67800	67800				
D5	0	nc	nc	119	165		125900	125900	98700	18278.5134	0.7302	DNA CP 015
D6	0	nc	nc	94	115		83600	83600				CPN100111
D7	0	nc	nc	121	132		101200	101200				
D8	0	nc	nc	99	122		89400	89400				
F5	0	18	41	4	21	11800	10000	10800	81025	29555.6727	0.8048	DNA CP 031
F6	0	nc	nc	87	101		75200	75200				CPN100639
F7	0	nc	nc	86	91		70800	70800				
F8	0	nc	nc	105	113		87200	87200				

Screen #	S#
Date	

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pCA1877 Genset SEQ ID NO 15

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:200	Average IFU per lung @ 1:50	Average IFU per lung @ @1:100	Average IFU per lung @ 1:200	Average IFU per lung	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p value vs grp B, same day)	Immunized with
B1	5	229	135	143	71	91800	111200	113800	106900	198720	68920.1973	na	saline
B2	5	365	190	170	88	146000	144000	140800	143700				
B3	5	510	353	379	160	204000	262800	250000	281400				
B4	5	719	439	358	148	287600	317600	236800	286900				
B5	5	479	281	262	98	191600	206200	156800	191700				
B6	9	132	69	75	20	52800	57800	32000	50000	137280	132556.228	na	saline
B7	9	151	63	71	27	60400	53800	43200	52700				
B8	9	155	75	84	22	62000	63600	35200	59100				
B9	9	373	113	211	76	149200	125600	121800	132500				
B10	9	1089	425	580	213	435000	402000	340800	395100				
E1	5	483	242	240	132	185200	192800	211200	195500	337950	106397.944	0.7302	DNA CP 038
E2	5	1210	689	509	269	484000	479200	430400	486200				CPN100877
E3	5	830	331	345	157	332000	270400	251200	281000				
E4	5	1041	647	450	209	418400	439800	334400	407100				
E5	9	2448	1323	1590	915	978200	1165200	1484000	1193400	833825	517291.124	0.8048	
E6	9	2758	1435	1379	661	1103200	1125600	1057600	1103000				
E7	9	140	89	66	35	50000	54000	59000	55000				
E8	9	513	237	234	97	205200	189400	155200	184300				

Screen #	S9
Date	

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pCAI628 Genset SEQ ID NO 500
pCAI634 Genset SEQ ID NO 478
pCAI640 Genset SEQ ID NO 468

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Average IFU per mg @ 1:50	Average IFU per mg @ 1:100	Average IFU per mg @ 1:200	Average IFU per mg	Group mean IFU/mg	Group SD IFU/mg	Wilcoxon p value (vs grp B, same day)	Immunized with
B1	5	2054	1238	1188	921900	960400	960400	934200	865240	255080.862	na	saline
B2	5	1604	844	760	641800	641800	630400	638600				
B3	5	452	301	327	169800	251200	224000	226800				
B4	5	2082	1182	1083	832800	806000	860400	808800				
B5	5	1970	999	872	789000	746400	569600	717600				
B6	6	1188	577	563	476400	456000	565600	494000	238080	136450.158	na	saline
B7	9	481	203	246	179600	168400	166500					
B8	9	704	234	311	261600	216000	264000	245400				
B9	9	467	212	241	186800	181200	148800	174500				
B10	9	282	134	98	116600	92800	81600	96000				
E1	5	1069	605	605	427600	464000	464000	475500	568675	322172.808	0.5556	DNA pCAI 628
E2	5	1126	577	633	450400	464000	540800	469800				
E3	5	2384	1210	1337	945600	1018800	1395200	1094600				
E4	5	534	325	231	213600	222400	212800	217800				
E5	9	DEAD	DEAD	DEAD	DEAD	DEAD	DEAD	DEAD	148733.333	8003.51748	0.25	DNA pCAI 628
E6	9	392	197	152	156800	139600	139200	143800				
E7	9	381	208	191	152400	156800	148800	155100				
E8	9	439	197	148	175600	136000	113600	141300				
F1	5	2600	1590	1548	1120000	1255200	1283200	1226400	468300	448115.571	0.4127	DNA pCAI 634
F2	5	537	220	270	214800	196000	208400	203300				
F3	5	245	107	115	88000	88800	96000	92800				
F4	5	650	454	419	260000	346800	436800	348600				
F5	9	457	184	155	182800	135600	153600	151900	354650	245902.608	1.27	DNA pCAI 634
F6	9	187	78	117	68800	77200	82400	70900				
F7	9	1166	605	830	487200	574000	652800	597000				
F8	9	1252	732	830	500800	624800	764800	626800				
G1	5	393	191	162	157200	141200	132800	143100	199775	38538.486	0.03175	DNA pCAI 640
G2	5	592	289	217	236600	202400	177600	204800				
G3	5	572	288	177	228600	185200	167000	186800				
G4	5	672	333	250	268600	232200	263200	254600				
G5	9	1097	507	441	438600	376200	267600	373700	373100	59598.368	0.8046	DNA pCAI 640
G6	9	746	422	388	289400	328000	208600	251000				
G7	9	1067	507	523	438600	412000	355200	404500				
G8	9	1238	591	532	485200	446200	269200	423200				

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pCAI115 Genset SEQ ID NO 305
pCAI419 Genset SEQ ID NO 876
pCAI630 Genset SEQ ID NO 485
pCAI632 Genset SEQ ID NO 480/482

Note: samples tested at 1:100, 1:200, 1:200 and 1:400 in this screen
** This sample was tested at 1:50, 1:100, 1:100 and 1:200. These dilutions were factored into the calculation for Average IFU/ing for G1.

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:100	Plate A Inclusions per well @ 1:200	Plate B Inclusions per well @ 1:200	Plate B Inclusions per well @ 1:400	Average IFU per ling @ 1:100	Average IFU per ling @ 1:200	Average IFU per ling @ 1:400	Average IFU per ling	Group mean IFU/ing	Group SD IFU/ing	Wilcoxon p value (vs grp B, same day)	Immunized with
B1	5	381	216	178	144	304800	313600	460800	348200	428800	236800.267	na	saline
B2	5	238	105	122	80	190400	181600	250000	202400				
B3	5	480	278	242	148	384000	418000	473600	422400				
B4	5	364	160	201	80	291200	304800	256000	268200				
B5	5	1112	593	574	292	889600	905600	838400	868800				
B6	9	81	36	57	19	64800	74400	60800	68800	157060	83783.3669	na	saline
B7	9	367	175	205	74	293600	304000	236800	284800				
B8	9	138	70	110	41	108800	144000	131200	132000				
B9	9	100	30	66	25	80000	76800	80000	78400				
B10	9	257	119	169	69	205600	233400	220800	221800				
D1	5	166	84	94	29	134400	142400	92800	128000	137750	76908.1758	0.03175	DNA pCAI 115
D2	5	342	177	168	70	273600	276000	234000	262400				
D3	5	157	58	73	29	125600	104800	82800	107000				
D4	5	62	40	37	13	49600	61600	41600	53600				
D5	9	331	176	143	63	264800	255200	201600	244200	133550	96781.341	0.8046	DNA pCAI 115
D6	9	98	51	58	17	78800	85600	54400	75800				
D7	9	165	71	82	42	132000	122400	134400	127600				
D8	9	123	82	57	18	98400	95200	57600	66800				
E1	5	298	139	82	51	238400	179800	163200	168800	118100	89372.2567	0.01587	DNA pCAI 419
E2	5	92	48	49	18	73600	77800	57600	71800				
E3	5	296	104	138	41	212800	163600	131200	162800				
E4	5	42	21	21	5	33600	33600	18000	29200				
E5	9	4	2	4	2	3200	4800	6400	4800	63150	42782.9682	0.1111	DNA pCAI 419
E6	9	71	25	37	16	59800	49600	51200	51800				
E7	9	128	72	100	37	102400	137600	116400	124000				
E8	9	80	28	64	24	64000	73600	76800	72000				
F1	5	206	125	126	66	164800	200800	217600	196000	195550	128036.791	0.1111	DNA pCAI 630
F2	5	481	247	278	125	384800	420000	400000	408200				
F3	5	147	49	85	32	117600	91200	102400	100800				
F4	5	109	43	49	26	87200	73600	63200	79400				
F5	9	173	80	57	17	136400	83600	54400	65000	69150	77620.3621	0.4127	DNA pCAI 630
F6	9	304	111	152	76	243200	210400	243200	228800				

F7	9	63	30	39	6	56400	55200	25600	52600								
F8	9	31	10	19	8	24800	23200	25600	24200								
G1**	5	428	275	183	77	171600	175200	123200	161300	124025	33008.5122	0.01587				DNA pCAI 632	
G2	5	153	72	65	29	122400	109600	82800	106600								
G3	5	212	128	91	23	169600	175200	79600	148400								
G4	5	87	40	79	16	69600	65200	51200	77800								
G5	9	124	48	33	12	99200	63200	39400	66000	122450	43813.3867	0.5556				DNA pCAI 632	
G6	9	274	116	120	48	218200	190400	153600	186400								
G7	9	188	87	74	30	134400	112800	96000	114000								
G8	9	206	65	58	38	167200	68400	121600	121400								

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pCAIMOMP Genset SEQ ID NO 737

Important Note:

An error was made in Group B, where the mice were challenged with saline instead with C.p. In order to calculate Wilcoxon p values, use Group B values from Screen 14, as date of study and IFU values are in RED.

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:200	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung @ 1:200	Average IFU per lung @ 1:500	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p value (vs S14 grp B)	Immunized with
B1	9	0	0	0	0	0	0	0	0	0	0	Screen 14	saline
B2	9	0	0	0	0	0	0	0	0	0	0	Ave IFU/lung values:	no challenge
B3	9	0	0	0	0	0	0	0	0	0	0		
B4	9	0	0	0	0	0	0	0	0	0	0	63800	
												331600	
												235600	
												15000	
												101600	
D1	9	18	10	6	2	7200	6400	3200	5600	12600	9078.60409	0.2488	DNA pCAI MOMP
D2	9	106	36	34	14	42400	28000	22400	30200				
D3	9	37	11	10	5	14800	8400	8000	9600				
D4	9	83	32	16	2	33200	19200	3200	16700				
D5	9	0	0	0	0	0	0	0	0				
D6	9	42	13	15	3	16800	11200	4800	11000				
F1	9	14	8	10	4	5600	7200	9400	6600	3850	2157.73801	0.1255	DNA pCAI MOMP + 784D
F2	9	15	7	6	3	8000	5200	4800	5300				
F3	9	0	0	0	0	0	0	0	0				
F4	9	13	7	3	0	5200	4000	0	3300				
F5	9	18	7	4	3	7200	4400	4800	5200				
F6	9	13	2	3	1	5200	2000	1600	2700				
G1	9	16	11	3	1	8400	5800	1800	4800	7886.86867	5185.08315	0.1773	DNA pCAI MOMP + MOMP ISCOMs
G2	9	42	24	18	5	16800	16000	8000	14200				
G3	9	16	11	6	1	8400	7600	1800	5600				
G4	9	57	28	11	4	22800	15800	8400	15100				
G5	9	37	8	5	3	14800	5200	4800	7500				
G6	9	2	1	0	0	800	400	0	400				
H1	9	378	188	111	75	151600	111600	120000	123700	62256.6867	31608.7217	0.6981	DNA pCAI MOMP challenge with CWL 029
H2	9	148	88	77	34	59200	46200	54400	63000			vs grp 1	
H3	9	56	22	20	14	22400	16800	22400	19600				
H4	9	124	79	69	31	49800	59200	49600	54400				
H5	9	132	58	57	18	52800	46000	25600	42800				
H6	9	215	109	93	21	96000	80800	33600	70300				
I1	9	86	49	39	30	38400	35200	48800	36200	55568.6867	20404.7925	na	PBS challenge with
I2	9	86	48	37	24	34400	33200	38400	34800				

13	9	189	83	60	41	75600	85200	85600	67900			CWL 029
14	9	200	111	131	68	80000	108800	95600				
15	9	116	53	60	37	48400	45200	59200	49800			
16	9	151	77	66	23	60400	57200	38400	52800			

D2	9	48	17	14	5	19200	12400	8000	13000			
D3	9	31	13	10	6	12400	9200	14400	11300			
D4	9	9	5	6	2	3600	4400	3200	3600			
D5	9	55	18	34	10	22000	20800	16000	19900			
D6	9	42	26	34	12	16800	24800	19200	21400			
E1	9	125	78	76	31	50000	60800	49800	55300	27821.0661	0.2824	DNA pCai 711
E2	9	35	21	19	8	14000	16000	12900	14700			
E3	9	82	32	46	20	32800	31200	32900	31800			
E4	9	264	115	121	59	105600	94400	89800	96000			
E5	9	50	28	45	14	20000	25400	22400	24900			
E6	9	66	28	33	7	26400	24400	11200	21600			

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Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:200	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung @ 1:200	Average IFU per lung	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p value (vs grp B)	Immunized with
B1	9	184	118	109	83	77800	90800	108000	90000	141797.5	128234.762	na	PBS
B2	9	156	86	104	40	62400	79000	64000	69600				
B3	9	286	155	182	86	118200	134800	156800	136400				
B4	9	861	582	618	305	384400	480000	480000	458100				
B5	9	367	179	222	124	146800	160400	189400	166500				
B6	9	145	78	80	18	58000	55900	28800	48500				
B7	9	32	21	11	10	12800	12800	18000	13600				
B8	9	356	216	193	83	142400	163900	132800	150600				
I1	9	83	42	60	19	33200	40800	30400	36300	50333.3333	18202.2587	0.08125	DNA pCAI 473
I2	9	78	86	86	22	31200	52800	35200	43000				
I3	9	159	65	80	33	63800	58000	52800	58100				
I4	9	180	65	90	33	72000	62000	52800	62200				
I5	9	75	28	32	10	30000	24000	18000	23500				
I6	9	215	77	122	44	86000	79000	70400	78900				

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pCA60kDa Genset SEQ ID NO 596
 pCAIMOMP Genset SEQ ID NO 737

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:200	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung @ 1:200	Average IFU per lung	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p value (vs grp B)	Immunized with
B1	9	210	140	133	72	84000	109200	115200	104400	74282.5	44432.7283	na	PBS
B2	9	71	30	58	23	28400	35200	36800	33900				
B3	9	185	138	116	70	78000	106000	112000	87600				
B4	9	77	50	54	30	30800	41600	48000	40500				
B5	9	378	225	202	102	151200	170800	183200	164000				
B6	9	154	86	82	34	81600	71200	54400	63200				
B7	9	201	108	78	44	80400	72800	70400	74100				
B8	9	43	28	19	7	17200	18000	11200	16100				
H1	9	12	8	3	4	4800	4400	6400	5000	8883.3333	5473.69874	0.001332	DNA pCA CRMP 50K
H2	9	45	23	24	12	18000	18800	18200	18700				
H3	9	20	10	7	4	8000	6900	9400	7000				
H4	9	32	23	8	7	12600	11600	11200	11800				
H5	9	28	12	11	5	11200	8200	8000	9400				
H6	9	4	2	1	1	1600	1200	1800	1400				
I1	9	55	28	17	12	22000	17200	19200	18600	25650	10914.3254	0.0283	DNA pCA MOMP
I2	9	88	37	40	18	34400	30800	28800	31200				
I3	9	49	27	22	10	19600	19600	18000	18700				
I4	9	39	13	15	5	15200	11200	8000	11400				
I5	9	145	47	50	28	58000	38800	44800	45100				
I6	9	70	42	32	17	28000	29800	27200	28600				

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pCAIMOMP Genset SEQ ID NO 737

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:200	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung @ 1:200	Average IFU per lung	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p value (vs grp B)	Immunized with
B1	9	135	60	57	38	54000	50000	57600	53100	47525	28892.9382	na	PBS
B2	9	147	80	51	29	58800	52400	49400	52500				
B3	9	142	75	71	33	58800	58000	52800	56600				
B4	9	304	136	141	69	121600	110800	110400	113400				
B5	9	79	49	26	19	31600	31200	30400	31100				
B6	9	61	37	28	11	24400	28600	17600	23500				
B7	9	45	11	15	6	18000	10400	8600	12100				
B8	9	99	59	42	19	39600	40400	30400	37700				
D1	9	23	13	12	8	9200	10000	12800	10500	20550	8151.43137	0.04282	DNA pCAI MOMP IN + IM
D2	9	37	16	24	14	14800	16000	22400	17300				
D3	9	65	31	49	28	28000	32000	41600	32800				
D4	9	41	15	15	9	18400	12000	14400	13700				
D5	9	38	17	27	18	15600	17600	25600	19100				
D6	9	64	24	43	25	25600	26800	40000	28800				
E1	9	11	3	3	1	4400	2400	1600	2700	7266.66667	4565.72695	0.001332	DNA pCAI MOMP IM only
E2	9	33	16	20	7	13200	14400	11200	13300				
E3	9	17	6	14	4	8800	8800	8400	7700				
E4	9	25	16	19	6	10000	14000	9600	11900				
E5	9	20	9	15	2	8000	9600	3200	7500				
E6	9	2	1	0	0	800	400	0	400				
F1	9	34	16	17	7	13600	13200	11200	12600	38083.3333	27897.934	0.4726	DNA pCAI MOMP IN only
F2	9	149	54	66	20	59600	46200	32000	47500				
F3	9	108	35	47	12	43200	32800	19200	32000				
F4	9	2	1	0	1	800	400	1600	800				
F5	9	122	54	60	33	48800	45600	52800	48200				
F6	9	284	101	113	45	105600	65900	72000	87200				
G1	9	47	11	31	12	18800	16800	19200	17900	54283.3333	45678.0696	0.8516	DNA pCAI MOMP + 76 KD IN + IM
G2	9	57	14	14	7	22800	11200	11200	14100				
G3	9	56	24	26	12	22400	20000	19200	20400				
G4	9	278	100	132	67	110400	62800	107200	100900				
G5	9	118	50	80	14	47200	44000	22400	39400				
G6	9	415	156	194	54	196000	140000	86400	133100				
H1	9	112	58	43	28	44800	40400	44800	42800	25868.6667	12753.3673	0.1812	DNA pCAI MOMP + 76 KD IM only
H2	9	80	46	36	22	32000	34000	35200	33600				
H3	9	50	22	26	9	20000	19200	14400	18200				
H4	9	42	14	17	12	16800	12400	18200	15200				
H5	9	25	7	13	4	10000	8000	6400	8100				

[illegible]

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pCABk319 Genset SEQ ID NO 315

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:200	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung @ 1:200	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p value (vs grp B)	Immunized with
B1	9	141	91	72	50	56400	65200	60000	61987.5	24684.8124	na	PBS
B2	9	148	106	68	43	59200	69600	68600				
B3	9	134	85	65	36	53600	52000	57600				
B4	9	91	55	49	22	36400	41600	39700				
B5	9	324	172	151	75	126500	126200	120000				
B6	9	54	31	40	21	21600	24600	38600				
B7	9	60	47	61	14	32000	43200	35200				
B8	9	173	103	96	53	69200	80800	64600				
H1	9	93	54	35	27	37200	35600	43200	28916.6667	16064.2224	0.04262	DNA pCABk 319
H2	9	35	17	13	7	14000	12000	12300				
H3	9	102	45	52	27	40600	36800	43200				
H4	9	0	0	0	0	0	0	0				
H5	9	116	58	54	26	46400	44800	41600				
H6	9	66	30	40	14	27600	28000	22400				

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pCACPNM200 Genset SEQ ID NO 201

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:200	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung @ 1:200	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p values (vs grp B)	Immunized with
B1	9	432	221	229	128	172600	164000	204600	141587.5	84314.2253	na	PBS
B2	9	422	210	222	109	168600	172600	174400				
B3	9	129	85	76	42	51600	56400	67200				
B4	9	676	348	424	233	270400	306800	372600				
B5	9	312	149	159	76	124600	123200	121600				
B6	9	130	87	64	36	52000	53600	57600				
B7	9	407	219	207	113	162600	170400	190600				
B8	9	125	76	63	32	50000	55600	51200				
O2	9	129	63	77	36	51600	56000	57600				
D3	9	550	213	262	172	220000	202000	275000	76180	76030.7734	0.2844	DNA pCACPNM 200
D4	9	60	31	37	16	24000	27200	26000				
D5	9	10	4	3	1	4000	2900	1800				
D6	9	162	88	89	41	72600	74600	65600				
D1	9	0	0	0	0	0	0	0	omitted from calculations			

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pCAI635 Genset SEQ ID NO 477

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Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:200	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung @ 1:200	Average IFU per lung	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p value (vs grp B)	Immunized with
B1	9	365	188	206	108	146000	158000	172800	158700	184537.5	70742.6134	na	PBS
B2	9	840	345	259	137	256000	241600	218200	238800				
B3	9	364	220	229	109	145500	178800	174400	198800				
B4	9	427	175	193	116	170800	147200	188800	183500				
B5	9	271	151	113	77	108400	105600	123200	110700				
B6	9	288	142	109	71	115200	113800	113600	107400				
B7	9	797	391	377	166	318800	307200	288800	306500				
B8	9	177	80	86	47	70800	59200	75200	86100				
I1	9	275	137	157	92	110000	117600	147200	123100	68766.0667	44324.38	0.01988	DNA pCAI 635
I2	9	128	51	86	38	51200	54800	60800	55400				
I3	9	126	68	68	31	50400	54400	49800	52200				
I4	9	304	134	189	88	121600	126200	158800	134200				
I5	9	72	28	57	13	28800	34400	20800	28500				
I6	9	53	25	21	9	21200	19400	14400	18100				

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pCACPNM882 Genset SEQ ID NO 880
pCA60kDa Genset SEQ ID NO 596

Highlighted section is excluded from the calculation. Group B values from Screen 43 will be used for Wilcoxon p value calculation. S43 values are in RED.

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:200	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung @ 1:200	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p value (vs S43 grp B)	Immunized with
B1	9	130	77	99	65	52000	70400	104000	142650	38040.6033	S43 -Grp B values	PBS
B2	9	59	26	32	33	29600	23200	52800			209803	
B3	9	85	44	46	25	38600	36600	40000			70000	
B4	9	39	20	26	14	15600	20800	22400			225700	
B5	9	428	225	223	103	171200	178200	164800			179600	
B6	9	468	220	287	102	187200	176000	163200			424100	
B7	9	262	153	149	82	112800	120800	131200			242200	
B8	9	240	111	122	53	96000	83200	84800			256000	
											55000	
I1	9	47	15	24	14	18800	15800	22400	18100	77500	0.0283	DNA pCACPNM 882
I2	9	313	180	187	84	125200	130800	134400				
I3	9	185	81	93	49	74000	69800	79400				
I4	9	125	69	68	35	50000	54000	59000				
I5	9	180	45	100	41	72000	56000	63400				
I6	9	374	143	162	71	148800	122000	113600				
J1	9	105	71	82	29	42000	61200	48400	58518.6967	26985.781	0.007982	DNA pCA CRMP 60 kD
J2	9	68	48	59	28	27200	42000	44800				
J3	9	213	139	164	64	85200	121200	102400				
J4	9	34	24	29	19	13600	21200	30400				
J5	9	146	72	91	39	56400	65200	82400				
J6	9	153	65	100	48	61200	66000	78800				

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pCAI396 Genset SEQ ID NO 28
pCABK319 Genset SEQ ID NO 315

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:200	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung @ 1:200	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p values (vs grp B)	Immunized with
B1	9	365	183	191	91	148000	149600	145600	325950	294241.414	na	PBS
B2	9	472	225	238	121	188800	185200	193600				
B3	9	578	295	306	156	231200	240400	249600				
B4	9	1009	448	481	232	403600	375600	371200				
B5	9	758	388	389	201	302400	302800	321600				
B6	9	1716	1384	1471	825	690400	1142000	1320000				
B7	9	374	200	191	83	149600	159400	148800				
B8	9	276	150	143	77	110400	117200	123200				

H1	9	151	53	68	37	60400	49400	56200	54100	98000	51311.0774	0.007982	DNA PCA 396
H2	9	221	93	114	83	69400	82800	100600	88700				
H3	9	160	97	86	35	84000	73200	56000	66500				
H4	9	487	255	236	144	194900	198400	230400	204500				
H5	9	188	57	93	34	75200	60000	54400	62400				
H6	9	305	112	156	89	122000	107200	110400	111700				
I1	9	248	108	127	51	98200	83200	81800	91800	174283.333	128438.384	0.2284	DNA PCA 319
I2	9	851	384	428	186	340400	317200	297600	318100				
I3	9	1039	435	528	219	415600	394400	350400	383700				
I4	9	148	74	81	36	58200	62000	57800	60200				
I5	9	396	131	198	83	159400	139800	109800	130200				
I6	9	167	54	83	39	68600	58800	62400	61700				

Screen #	S49
Date	

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pCA60kDa Genset SEQ ID NO 596

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:200	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung @ 1:200	Average IFU per lung	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p value (vs matched group)	Immunized with
C57BL6													
D1	9	365	181	187	84	148000	138200	102400	131700	106520	81662.2218	na	PBS
D2	9	514	257	279	131	205600	214400	208600	211000				
D3	9	258	116	133	56	103200	98600	98600	98000				
D4	9	136	61	74	26	54400	54000	41800	51000				
D5	9	109	49	67	17	43800	49400	27200	40900				
Balb/c													
E1	9	283	135	127	58	113200	104800	82800	103900	188740	75974.0377	na	PBS
E2	9	903	413	403	190	381200	328400	304000	325600				
E3	9	511	238	241	115	204400	190800	184000	182500				
E4	9	397	209	203	105	158900	164800	168000	184100				
E5	9	389	205	183	88	155600	159200	148800	153700				
Balb/c													
F1	9	74	31	39	21	28600	29000	33800	29800	76880	32203.3168	na	PBS
F2	9	198	111	102	53	76200	85200	84800	83800				
F3	9	223	120	108	64	89200	91800	102400	93700				
F4	9	149	84	77	40	58600	64400	64000	63100				
F5	9	329	156	183	75	131600	127800	120000	126700				
C57BL6													
J1	9	33	11	16	14	13200	10800	22400	14300	58540	47740.7834	vs group D 0.3985	DNA pCA CRMP 60KD
J2	9	338	168	186	101	134400	142000	161600	145000				
J3	9	146	66	79	38	58400	58800	68600	59200				
J4	9	48	12	23	8	18200	14000	12800	15800				
J5	9	150	62	57	26	60000	47600	41600	49200				
Balb/c													
K2	9	1028	488	513	246	411200	404400	393600	403400	225375	138902.253	vs group E 0.9048	DNA pCA CRMP 60KD
K3	9	253	120	137	63	101200	102800	100800	101600				
K4	9	821	387	401	184	329400	316200	294400	313300				
K5	9	189	112	98	55	75800	84000	86000	82900				
K1	9	0	0	0	0	0	0	0	0	omitted from calculations			
Balb/c													
L1	9	23	9	22	8	8200	12400	12800	11700	34860	36831.7037	vs group F 0.1508	DNA pCA CRMP 60KD
L2	9	54	24	17	6	21800	19400	9800	16000				
L3	9	83	36	49	22	33200	35200	35200	34700				
L4	9	23	5	11	2	9200	6400	3200	8300				
L5	9	261	125	149	83	104400	109600	100800	106100				

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pCA60KDa Genset SEQ ID NO 596
pCAIMOMP + pCA60KDa + pCAI764 + pCAI555a

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:200	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung @ 1:200	Average IFU per lung	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p values (vs grp B)	Immunized with
B1	9	729	370	363	186	291600	293200	313600	287900	217937.5	103234.453	na	PBS
B2	9	878	451	439	227	350400	359000	363200	356400				
B3	9	523	243	312	151	206200	222000	241600	223700				
B4	9	299	150	159	71	118600	123600	113600	120100				
B5	9	885	459	478	227	354000	375200	363200	366900				
B6	9	271	148	189	86	108400	134800	137600	126900				
B7	9	354	195	223	105	141800	167200	169000	161000				
B8	9	184	120	117	57	73600	84800	81200	88900				
F1	9	442	218	260	108	176800	191200	172800	183000	152100	79111.8617	0.345	DNA pCA CRMP 60
F2	9	138	60	78	24	54400	55600	36400	51000				
F3	9	177	83	99	38	70600	64800	60800	65300				
F4	9	814	278	340	187	245600	247200	267200	251800				
F5	9	253	149	189	79	101200	127200	126400	126500				
F6	9	596	315	320	136	238400	254000	217600	241000				
I1	9	81	39	66	25	32400	42000	40000	39100	35366.6667	15656.2731	0.000668	mixture of DNAs
I2	9	64	28	24	11	25500	20000	17600	20800				MOCP
I3	9	47	17	23	8	18600	16000	14400	16300				CRMP 80
I4	9	87	38	29	16	28800	26800	25600	26500				pCAI 764
I5	9	121	77	59	28	48400	54400	41600	49700				pCAI 555
I6	9	162	80	64	37	84600	57600	59200	59800				

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pCAI555a Genset SEQ ID NO 776775

exclude B1 from calculations

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:200	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung @ 1:200	Average IFU per lung	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p values (vs grp B)	Immunized with
B1	9	0	0	0	0	0	0	0	0	88600	89457.7165	na	PBS
B2	9	54	28	26	5	21600	20800	8000	17900				
B3	9	189	119	83	51	75500	80800	81600	78700				
B4	9	13	7	6	2	5200	5200	3200	4700				
B5	9	524	274	223	120	209600	198800	182000	196800				
B6	9	382	141	181	103	144800	129800	194800	141800				
B7	9	385	180	181	71	154000	139400	113600	135100				
B8	9	123	48	62	17	46200	44400	27200	41300				

F1	9	52	17	22	9	20500	15500	14400	16500	11718.8667	13132.0748	0.01399	DNA pCAL 555a
F2	9	13	1	6	0	5200	2800	0	2700				
F3	9	3	0	2	0	1200	500	0	700				
F4	9	43	17	15	5	17200	12600	8000	12700				
F5	9	0	0	0	0	0	0	0	0				
F6	9	118	47	48	17	47200	36000	27200	37500				

Screen #	552
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pCAI314 Genset SEQ ID NO 291
pCACPNM882 Genset SEQ ID NO 880

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:200	Average IFU per well @ 1:50	Average IFU per well @ 1:100	Average IFU per well @ 1:200	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p value (vs grp B)	Immunized with
B1	9	140	75	100	41	56000	70000	65000	124175	108280.646	na	PBS
B2	9	802	298	328	154	240800	250000	248400				
B3	9	158	83	97	31	63200	72000	48600				
B4	9	864	418	483	228	345600	352400	361600				
B5	9	146	68	88	30	58400	61600	48000				
B6	9	318	170	188	75	127200	135200	120000				
B7	9	18	11	8	5	7200	7800	8000				
B8	9	188	87	110	34	88400	78800	54400				
E1	9	1320	610	775	338	528000	554000	540800	204500	214850.816	1.338	DNA pCAI 314
E2	9	865	521	730	294	386000	500400	470400				
E3	9	18	3	0	2	7200	1200	3200				
E4	9	171	54	74	19	88400	51200	30400				
E5	9	206	91	124	43	82400	86000	60800				
E6	9	218	73	188	37	88400	65600	59200				
G1	9	501	177	258	112	200400	173200	178200	385800	256078.807	0.7546	DNA pCAOPM 882
G2	9	1182	487	628	241	464800	448200	385800				
G3	9	604	278	331	123	241600	244000	198800				
G4	9	865	289	388	168	286000	278800	268800				
G5	9	2315	1078	1387	525	928000	878000	840000				
G6	9	875	308	357	148	270000	268000	236000				

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pCAI327 Genset SEQ ID NO 577
pCAI632 Genset SEQ ID NO 480/482

* -40 count-no sample

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:200	Average IFU per well @ 1:50	Average IFU per well @ 1:100	Average IFU per well @ 1:200	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p value (vs grp B)	Immunized with
B1	9	891	422	451	220	356400	348200	352000	402965.714	260185.777	na	PBS
B3	9	944	483	507	266	377800	396000	425600				
B4	9	747	347	411	188	288800	303200	313800				
B5	9	717	329	384	186	286800	285200	297600				
B6	9	507	254	242	129	202800	198400	201500				
B7	9	2788	1393	1378	560	1118400	1108400	944000				
B8	9	551	254	249	125	220400	201200	200600				
B2	9	*	*	*	*							

E1	9	1577	785	811	418	630800	538400	685000	643300	349533.333	181088.377	0.8452	DNA pCAI 419
E2	9	387	143	187	80	154800	136000	144000	142700				
E3	9	1477	508	688	253	598800	481600	404800	485700				
E4	9	1085	484			428000	365200		419800				
E5	9	408	180	248	104	183200	171200	188400	188000				
E8	9	827	259	380	131	250800	255600	208800	245800				
F1	9	94	48	47	18	37600	38000	28800	35600	118488.667	88078.8448	0.004682	DNA pCAI 327
F2	9	575	288	284	130	230000	220000	208000	218500				
F3	9	181	74	82	37	72400	62400	59200	64100				
F4	9	158	85	83	38	63200	58200	62400	61000				
F5	9	456	127	224	107	182400	140400	171200	158800				
F8	9	418	144	285	121	187200	163600	183600	172000				
H1	9	1450	660	720	340	580800	552000	540000	557000	243500	144052.19	0.1375	DNA pCAI 632
H2	9	831	229	237	114	252400	188400	182400	201900				
H3	9	384	148	181	71	157800	132000	118800	133800				
H4	9	372	168	178	89	148800	137600	142000	141800				
H5	9	516	249	285	119	208400	205600	180400	202000				
H6	9	849	280	283	128	259800	217200	204800	224700				

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Date	

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pCACPNM882 Genset SEQ ID NO 880
pCA60KDa Genset SEQ ID NO 596

* -no count-contaminated well
** -no count-well not stained

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:200	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung @ 1:200	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p value (vs grp B)	Immunized with
B1	9	239	127	107	57	95600	93900	91200	220150	153871.24	na	PBS
B2	9	1560	730	681	378	824000	564000	801600		588600		
B3	9	223	108	101	53	89200	83900	64800		65300		
B4	9	391	194	238	97	159400	172800	155200		184300		
B5	9	329	161	174	83	131800	134000	148800		137100		
B6	9	529	258	281	135	211600	207600	218000				
B7	9	744	333	397	209	297900	292000	334000		304000		
B8	9	469	217	221	108	187800	175200	172800		177700		
J1	9	646	202	237	106	259400	199600	193600	184119.667	69755.846	0.862	DNA pCACPNM 882
J2	9	*	345	321	187	7/na	265400	289200		282800		
J3	9	391	189	189	85	159400	143200	138000		144700		
J4	9	459	182	227	88	183800	163600	168800		165900		
J5	9	169	80	78	31	67800	55200	48900		59900		
J6	9	396	138	165	87	159400	120400	107200		129600		
J1	9	343	190	219	81	137200	163600	129600	159300	72712.8528	0.7548	DNA pCA CRMP 80 KD
J2	9	478	271	221	117	191200	188800	187200		183000		
J3	9	605	333	308	160	242000	255600	304000		264300		
J4	9	465	284	250	136	186000	205600	217600		203700		
J5	9	269	**	207	75	107800	165600	120000		88300		
J6	9	144	**	80	29	57600	64000	48400		42000		

Screen	58
Date	

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pCAI640 Genset SEQ ID NO 468
pCAI115 Genset SEQ ID NO 305

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:200	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung @ 1:200	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p value (vs B group)	Immunized with
B1	9	207	124	101	56	82800	90000	88600	221050	151443.372	na	PBS
B2	9	717	414	286	139	288800	280000	222400		267300		
B3	9	217	103	90	49	86800	77200	79900		76400		
B4	9	1373	704	675	329	548200	551800	528400		544700		
B5	9	864	308	371	166	285900	273800	265600		266200		
B6	9	745	450	378	186	298000	331600	297600		314700		
B7	9	260	165	118	56	104000	113200	89600		105000		
B8	9	227	148	127	58	90800	109200	92800		100500		

F1	9	967	432	416	186	38200	339200	300800	340500	302300	183124.131	1.665	DNA pCAI 640
F2	9	2153	915	781	353	861200	882400	594800	697700				
F3	9	501	330	332	159	240400	264800	254400	256100				
F4	9	359	181	189	99	143600	140000	159400	145500				
F5	9	280	140	147	80	104000	114800	89000	107400				
F6	9	702	312	378	147	280600	275200	235200	266600				
G1	9	343	128	155	131	137200	113200	209600	143300	264450	183257.594	1.338	DNA pCAI 638
G2	9	519	245	228	136	207600	186200	217600	200800				
G3	9	1548	896	769	359	618200	652000	574400	623400				
G4	9	177	80	71	35	70600	60400	59000	61900				
G5	9	787	383	506	219	314500	347600	350400	340100				
G6	9	481	213	408	97	182400	249400	155200	211100				
K1	9	223	118	136	86	85200	101600	105600	99500	157068.087	149283.308	0.4138	DNA pCAI 115
K2	9	1688	576	632	323	435200	482200	516800	479600				
K3	9	91	59	50	33	38400	43600	52800	44100				
K4	9	301	200	205	104	120400	162000	169400	152700				
K5	9	291	142	155	78	116400	118600	124600	119700				
K6	9	116	63	57	28	48400	48000	44600	46800				

Screen	57
Date	

Notebook #	R2163
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pCAI635 Genset SEQ ID NO 477

Mouse ID	Day post challenge	Plate A Inclusions per well @ 1:50	Plate A Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:100	Plate B Inclusions per well @ 1:200	Average IFU per lung @ 1:50	Average IFU per lung @ 1:100	Average IFU per lung @ 1:200	Average IFU per lung	Group mean IFU/lung	Group SD IFU/lung	Wilcoxon p value (vs grp B)	Immunized with
B1	9	406	165	180	69	182400	136000	110400	137200	253325	235965.045	na	PBS
B2	9	319	129	129	51	127600	103200	81600	103800				
B3	9	585	284	270	103	234000	221600	164800	210500				
B4	9	800	278	279	105	240000	222800	168000	213400				
B5	9	388	180	189	79	155200	155600	126400	148200				
B6	9	201	102	130	54	80400	82800	68400	86100				
B7	9	2322	915	1069	577	928900	769600	623200	859800				
B8	9	619	334	350	167	247600	273600	207200	265500				
G1	9	277	118	134	72	110800	109600	115200	106900	85796.6867	61576.7211	0.05927	DNA pCACPM 635
G2	9	306	157	191	75	154400	139200	120000	136200				
G3	9	481	180	230	118	194000	169000	165900	175500				
G4	9	178	62	75	38	76400	54600	68600	66200				
G5	9	19	8	11	6	7600	7600	12800	8900				
G6	9	45	26	26	15	18000	20800	24000	20900				

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 09/523,647

Applicant: MURDIN, Andrew D. et al.

Filed: March 10, 2000

TC/A.U.: 1645

Examiner: Mark Navarro

Docket No: 032931/0227

DECLARATION PURSUANT TO 37 CFR 1.131

I, Andrew Murdin, Director, External R&D Canada, Aventis Pasteur, hereby declare that:

1. I am an inventor in the above-identified application ('the application'), and am employed by the assignee, Aventis Pasteur.

2. Details of my employment history are as follows:

Since 2002 Director, External R&D Canada, Aventis Pasteur.

1999-2002 Principal Research Scientist, Aventis Pasteur.

1997-2002 Section Head, Aventis Pasteur.

1993-2003 Project Leader (Chlamydia), Aventis Pasteur.

1990-1993 Research Scientist, Connaught Laboratories Ltd. (subsequently Pasteur Merieux Connaught, subsequently Aventis Pasteur), Toronto, Canada.

1988-1990 Post-Doctoral Research Associate, Dept. of Microbiology, State University of New York, Stony Brook, NY, USA.

1985-1987 Post-Doctoral Research Fellow, Dept. of Microbiology, University of Surrey, Guildford, Surrey, England.

1981-1985 Scientific Officer, Vaccine Research Dept., Animal Virus Research Institute, Pirbright, Surrey, England.

Details of my education are as follows:

B.Sc., University of Bath, England, 1980

Ph.D., University of Surrey, England, 1986.

3. I obtained from Regis Sodoyer, an employee of the assignee Aventis Pasteur, at least 5 mg of the plasmid construct pCACRMP60 before November 4, 1998.

4. Attached are copies of e-mail correspondence between me and Regis Sodoyer. The dates deleted from the e-mail messages are before November 4, 1998. The product identified in the e-mails as CPCRMP60KD is the same as the plasmid construct pCACRMP60 shown in Figure 3 of the application.

5. The construct pCACRMP60 was used to immunize mice as described in Example 3 of the application. Injection of the mice with pCACRMP60 occurred before November 4, 1998.

6. I hereby declare that all statements made herein of my knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

20th Feb 2004

Date



Andrew Murdin

Director, External R&D Canada, Aventis Pasteur

Subject:

Date:

Murdin, Andrew - PMC-CA

From: Murdin, Andrew - PMC-CA
To: Sodoyer, Regis - PMC-FR
Cc: Dunn, Pamela - PMC-CA; Switzer, Iain - PMC-CA
Subject: RE: Shipment
Date:

Thankyou very much Regis, Your laboratory has been busy! Please send this material next week. If you have any more than 5mg please send that too, but we can work with 5mg if that is all you have. The person to contact about the shipments is Sharon James (fax + 1 416 667 2979). I would recommend that you do this personally rather than rely on your shipping department, since the last shipment was packaged with other material being sent to a different department here in Canada and all the documentation went to that department, not to me or Sharon.

Not all chlamydia proteins may express well in E.coli, and I have part of an FTE next year to look at alternative systems, so I will be interested to learn your results with 76kDa. We should discuss this when you return from vacation.

Just so that I am absolutely sure, could you confirm that the purified MOMP is the C. pneumoniae MOMP, not the C. trachomatis MOMP?

Thanks again and best wishes, Andrew.

From: Sodoyer, Regis - PMC-FR
To: Murdin, Andrew - PMC-CA
Cc: Aujaime, Luc - PMC-FR
Subject: Shipment
Date:

Andrew,

Some news from Marcy

If you agree, we have the following list of products ready for shipment.

- CP003 (CPCRMP 9KD)
- CP004 (CPCRMP 60KD)
- CP007 (Incyte 202)
- CP009 (Incyte 605)
- CP012 (Incyte 394)
- CP013 (Incyte 395)
- CP014 (Incyte 396)

5mg each

Purified MOMP protein (5 mg)

and probably the empty vector if we are on time with the purification.

7 additional ORFs are cloned and sequenced at both ends and will be purified soon.

The expression of 76K in E. coli (pET28) gives very low yields and a lot of degradation, we are currently trying another expression system (home made vector with Arabinose promoter).

Date

Murdin, Andrew - PMC-CA

From: Sodoyer, Regis - PMC-FR
To: Murdin, Andrew - PMC-CA
Subject: Shipment
Date: 10:08AM
Wednesday

Andrew,

We have arranged a shipment this morning, content is following :

- CP000 (empty vector) (about 13 mg in 2 separate tubes) (PCA/Myc-His)
- CP003 (CPCRM 9KD)
- CP004 (CPCRM 60KD)
- CP017 (Incye 397) (in replacement of CP007)
- CP009 (Incye 605)
- CP012 (Incye 394)
- CP013 (Incye 395)
- CP014 (Incye 396)
- 5mg each
- Purified MOMP protein (25mg) ~5.5mg

Recd.

[Handwritten signature]

This is C.P. MOMP
See attached e-mails
you will receive, as well as Sharon James, flight number and arrival time as soon as we know.

Regis

Witnessed _____
Date _____

Signed _____
Date _____